

WHAT IS CLAIMED IS:

1. An isolated DNA molecule comprising a nucleotide sequence of at least 600 consecutive base pairs of SEQ ID NO: 5.
2. An isolated DNA molecule having a nucleotide sequence encoding a Region I polypeptide comprising the sequence SEQ ID NO: 4.
3. The DNA molecule of claim 2, wherein said nucleotide sequence is operatively linked in a replicon.
4. The DNA molecule of claim 2, wherein said nucleotide sequence encodes a Region II polypeptide having the sequence SEQ ID NO: 8.
5. The DNA molecule of claim 4, wherein said nucleotide sequence is operatively linked in a replicon.
6. The DNA molecule of claim 2, wherein said nucleotide sequence encodes a Region III polypeptide having the sequence SEQ ID NO: 9.
7. The DNA molecule of claim 6 wherein said nucleotide sequence is operatively linked in a replicon.
8. The DNA molecule of claim 2, wherein said nucleotide sequence encodes encoding a Region IV polypeptide having the sequence SEQ ID NO: 10.
9. The DNA molecule of claim 8, wherein said nucleotide sequence is operatively linked in a replicon.
10. An isolated DNA molecule comprising a nucleotide sequence of at least 600 consecutive base pairs of SEQ ID NO: 6 or SEQ ID NO: 19.
11. The DNA molecule of claim 10, , wherein said nucleotide sequence encodes a Region I polypeptide having the sequence SEQ ID NO: 5 or SEQ ID NO: 20.

12. The DNA molecule of claim 11, wherein said nucleotide sequence is operatively linked in a replicon.
13. The DNA molecule of claim 10, wherein said nucleotide sequence encodes a Region II polypeptide having the sequence SEQ ID NO: 8 or SEQ ID NO: 22.
14. The DNA molecule of claim 13, wherein said nucleotide sequence is operatively linked in a replicon.
15. The DNA molecule of claim 10, wherein said nucleotide sequence encodes a Region III polypeptide having the sequence SEQ ID NO: 9 or SEQ ID NO: 24.
16. The DNA molecule of claim 15 wherein said nucleotide sequence is operatively linked in a replicon.
17. The DNA molecule of claim 10, wherein said nucleotide sequence encodes a Region IV polypeptide having the sequence SEQ ID NO: 10 or SEQ ID NO: 26.
18. The DNA molecule of claim 17, wherein said nucleotide sequence is operatively linked in a replicon.
19. An isolated polypeptide molecule comprising at least 200 consecutive amino acid residues of SEQ ID NO: 3, wherein one or more potential N-linked glycosylation sites in said polypeptide are eliminated by amino acid substitution, said substitution sites selected from the group consisting of T³²⁰, N³³⁰, T³⁵⁹, S⁵⁹¹, N⁶⁰², N⁶⁹¹, S⁷⁰¹, S⁷⁸⁵, and T¹⁰⁵⁸.
20. The polypeptide of claim 19, comprising a Region I peptide having the sequence SEQ ID NO: 14 or SEQ ID NO: 20.
21. The polypeptide of claim 20, wherein the potential N-linked glycosylation sites in said polypeptide are eliminated by substitution with alanine.

22. The polypeptide of claim 19, comprising the amino acid sequence SEQ ID NO: 11, wherein alanine is substituted for T³⁵⁹ and S⁵⁹¹

23. The polypeptide of claim 19 comprising the amino acid sequence SEQ ID NO: 12, wherein alanine is substituted for S⁷⁸⁵

24. The polypeptide of claim 19, comprising the amino acid sequence SEQ ID NO: 13, wherein alanine is substituted for T³⁵⁹, S⁵⁹¹, N⁶⁰², N⁶⁹¹, S⁷⁰¹ and S⁷⁸⁵

25. A vaccine for the prevention, attenuation or treatment of Severe Acute Respiratory Syndrome (SARS) in a mammal comprising polynucleotide having a sequence of at least 600 consecutive base pairs of SEQ ID NO: 6 or SEQ ID NO: 19 and a carrier.

26. The vaccine of claim 25, wherein said polynucleotide encodes a polypeptide comprising the sequence SEQ ID NO: 4 or SEQ ID NO: 20.

27. The vaccine of claim 25, wherein said polynucleotide encodes a peptide comprising the sequence SEQ ID NO: 8 or SEQ ID NO: 22.

28. The vaccine of claim 25, wherein said polynucleotide encodes a peptide comprising the sequence SEQ ID NO: 9 or SEQ ID NO: 24.

29. The vaccine of claim 25, wherein said polynucleotide encodes a polypeptide comprising the sequence SEQ ID NO: 10 or SEQ ID NO: 26.

30. A vaccine for the prevention, attenuation or treatment of Severe Acute Respiratory Syndrome (SARS) in a mammal comprising a polypeptide corresponding to SEQ ID NO: 3, said polypeptide comprising at least 200 residues wherein one or more potential N-linked glycosylation sites are optionally substituted to block glycosylation, and a carrier.

31. The vaccine of claim 30, wherein said glycosylation sites are selected from the group consisting of T³²⁰, N³³⁰, T³⁵⁹, S⁵⁹¹, N⁶⁰², N⁶⁹¹, S⁷⁰¹, S⁷⁸⁵, and T¹⁰⁵⁸.

32. The vaccine of claim 31, wherein at least one potential N-linked glycosylation sites in said polypeptide is substituted with alanine.

33. The vaccine of claim 32, wherein alanine is substituted for T³⁵⁹ and S⁵⁹¹.
34. The vaccine of claim 32, wherein alanine is substituted for S⁷⁸⁵.
35. The vaccine of claim 32, wherein alanine is substituted for T³⁵⁹, S⁵⁹¹, N⁶⁰², N⁶⁹¹, S⁷⁰¹ and S⁷⁸⁵.
36. An antibody against a polypeptide molecule of claim 19.
37. The antibody of Claim 36 wherein said antibody is polyclonal.
38. The antibody of Claim 36 wherein said antibody is monoclonal.
39. The antibody of claim 37 or claim 38 wherein said polypeptide comprises the a Region I peptide having SEQ ID NO: 14 or SEQ ID NO: 20.
40. The antibody of claim 39 wherein one or more potential N-linked glycosylation sites in said polypeptide are eliminated by amino acid substitution.
41. The antibody of claim 37 or 38 wherein alanine is substituted for T³⁵⁹ and S⁵⁹¹ in said polypeptide.
42. The antibody of claim 37 or 38 wherein alanine is substituted for S⁷⁸⁵ in said polypeptide.
43. The antibody of claim 37 or 38 wherein alanine is substituted for T³⁵⁹, S⁵⁹¹, N⁶⁰², N⁶⁹¹, S⁷⁰¹ and S⁷⁸⁵ in said polypeptide.
44. An isolated DNA molecule encoding a polypeptide comprising at least 200 consecutive amino acid residues of SEQ ID NO: 3.
45. The DNA molecule of Claim 44 encoding all of Seq ID NO:3 .
46. A isolated polypeptide molecule comprising at least 200 consecutive amino acid residues of a polypeptide having the sequence SEQ ID NO: 3.
47. The polypeptide of cl;aim 46 comprising the entire SEQ ID NO: 3.

48. A vaccine for the prevention, attenuation or treatment of Severe Acute Respiratory Syndrome (SARS) in a mammal comprising a nucleotide sequence encoding at least 200 amino acid residues of SEQ ID NO: 3.
49. A vaccine for the prevention, attenuation or treatment of Severe Acute Respiratory Syndrome (SARS) in a mammal comprising a polypeptide containing at least 200 amino acid residues of SEQ ID NO: 3.
50. A DNA molecule encoding a Region I polypeptide fragment.
51. A DNA molecule encoding a Region II polypeptide fragment.
52. A DNA molecule encoding a Region III polypeptide fragment.
53. A DNA molecule encoding a Region IV polypeptide fragment.
54. The DNA molecule of claims 50-53, wherein the fragment is a native fragment.
55. The DNA molecule of any of claims 50-53, wherein the fragment comprises at least one eliminated glycosylation site.
56. The DNA of any of claims 50-55, wherein said DNA is codon-optimized.
57. A polypeptide expressed by a DNA molecule of any of claims 50-55.
58. A vaccine comprising a DNA molecule of any of claims 50-55.
59. A vaccine comprising a polypeptide of claim 57.
60. An antibody to a polypeptide of claim 57.